Illinois Department of Transportation
2300 South Dirksen Parkway / Springfield, Illinois / 62764

Subject:
Resurfacing of D-Cracked CRC Pavements

CONSTRUCTION MEMORANDUM NO. 95-59

Effective: **January 3, 1995**

Expires: **Indefinite**

This memorandum supersedes Construction Memorandum 86-59 dated January 1, 1986.

Pavement deterioration known as D-cracking is typified by a series of closely-spaced crescent-shaped hairline cracks that appear at the pavement slab surface adjacent and roughly parallel to transverse cracks or joints, longitudinal joints and free edges of the pavement slab. These surface cracks often contain calcium hydroxide residue which causes a dark coloring of the crack and immediate surrounding area.

At the higher severity levels of distress, there is often considerable loose material in the affected area and there is a greater degree of spalling at the cracks.

Recent studies have shown that if this loose material is not removed in the cleaning and surface preparation stage preceding the placement of bituminous overlays with thicknesses of 50 to 75 mm (2 to 3 inches), the material can later work up through the mat.

The purpose of this memorandum is to advise the Resident on the proper methods of preparing D-cracked CRC pavements prior to placing thin bituminous overlays.

After patching (partial depth or full depth) or placing of the Fiber Glass Fabric Repair Systems as specified in the contracts are completed, additional areas either longitudinal or transversally where loose material is evident should be repaired by one of the following methods:

1) Clean out all loose and unsound materials with hand tools, prime the cleaned areas and fill with Leveling Binder (Hand Method) and compact with pneumatic-tired roller prior to placing the first bituminous course.

2) On longitudinal joints or cracks where the unsound concrete is reasonably uniform in width, the use of a rock saw or small milling machine may be used instead of hand tools to remove the deteriorated concrete to a depth of 50 to 75 mm (2 to 3 inches). The trough resulting from machine removal should then be primed and filled with Leveling Binder (Hand Method) and compacted prior to placing the first bituminous course.

Work using either method #1 or #2 will be performed in accordance with the first paragraph of Article 406.06 (a) and paid for in accordance with Article 109.04 of the Standard Specifications.

When Fiber Glass Fabric Repair Systems is specified in the contract, the following guidelines should be followed to ensure that the system will function properly.

After the width of deteriorated pavement is determined, the area to be covered with the fiber glass fabric should be extended 150 mm (six inches) on each side of the deteriorated pavement to ensure that the fiber glass fabric extends over sound pavement on both sides.

The bituminous adhesive is sensitive to cutback asphalts like RC-70, which is allowed in the Standard Specifications as prime (tack) coat for bituminous overlays. The solvent used in processing the cutback asphalt reacts with the adhesive, thereby making it tacky and may pick up with traffic.

Emulsified asphalts (like SS-1) only should be used as a prime (tack) coat over the Fiber Glass Fabric Repair System for the bituminous overlays. In the event the emulsified asphalt becomes tacky on very hot days, air temperature exceeding 32°C (90 °F), a slight dusting of mineral filler or portland cement will make it tack free.

The preparation of D-cracked CRC pavements for thin overlays is a potentially costly procedure, so the Resident is encouraged to discuss the preceding guidelines with the District Construction Field Engineer prior to the start of work.

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Engineer of Construction